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AMMUNITION BULLETIN NO 6.

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(DECEMBER 1939).

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CHIEF INSPECTOR OF ARMAMENTS,
WOOLWICH, S.E.18.

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AMMUNITION BULLETIN № 5.

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WOOLWICH, S.E.18.

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SECURITY

AMMUNITION BULLETIN NO. 6

for Inspecting Ordnance Officers

issued December 1939

Issued by
Chief Inspector of Armaments, Woolwich.

Contents:-

Aerial Bombs Chemical - Detail & packages
" " Incendiary detail
Shell Marking
Luting
T.N.T. Slabs and packages
Picrite
Neonite
R.D.X.
Oiling of Shell
Cartridges - Adjusted charges
German Aircraft bombs.

R.2560

AERIAL BOMBS (CHEMICAL)

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DESIGNATION	MAX:		SERIAL NUMBER AND MARK OF PACKAGE.	PACKAGE STOWAGE DIMENSION.		
	LENGTH	DIA:		LENGTH	BREADTH	DEPTH
INSTALLATION SC 250 LBS. TYPE S/G						
MK II	48.92	12.11	B 288 MK I	53.25	21.25	24.0
MK III	"	"	B 320 MK I	54.875	21.625	24.25
BOMB, AIRCRAFT, L.C. 250 LBS.						
MK I	37.1	12.0	ISSUED UNBOXED.	-	-	-
MK II	"	"	FITTED WITH TRANSIT BASE			
BOMB, AIRCRAFT, L.C. 50 LBS.						
MK I	32.17	8.65	B 230 MK I	32.25	14.0	14.25
MK II	32.22	"	" "	"	"	"
BOMB, AIRCRAFT, L.C. 30 LBS						
MK I	30.26	5.0	B 304 MK I (TO HOLD 4)	37.62	15.75	16.75
MK II	32.81	5.0	B 304 MK II (TO HOLD 4 EACH IN CONTAINER N° 21)	36.35	14.6	14.0

AERIAL BOMBS (CHEMICAL)

ESTIMATED WEIGHT OF BOX.			MARKING	
EMPTY	WITH BOMB EMPTY	WITH BOMB FILLED	BOMB	BOX.
188 LBS. 230 LBS.	262 LBS. 310 LBS.	440 LBS. 495 LBS.	BODY PAINTED GREY, WITH 3 INCH YELLOW RING AROUND THE BODY.	PAINTED GREY EACH END OF BOX PAINTED WITH A BAND THE COLOUR OF WHICH AGREES WITH THE MARKING ON BOMB.
-	-	-	BODY PAINTED GREY, WITH 3 INCH RING AROUND NOSE. COLOURED YELLOW WHEN FILLED YELLOW N° 1 COLOURED BLACK WHEN FILLED BLACK N° 1 COLOURED GREEN WHEN FILLED GREEN N° 1	NOTE:- IN FUTURE THE BOX WILL HAVE A SINGLE COLOURED BAND AROUND THE MIDDLE ONLY WITH NATURE OF FILLING STENCILLED ON THE BAND e.g. Y1.
57 LBS. "	74 LBS. "	107 LBS. "	BODY PAINTED GREY, WITH 3 INCH YELLOW RING AROUND NOSE. "	
56 $\frac{1}{2}$ LBS. 48 LBS.	134 $\frac{1}{2}$ LBS. 117 LBS.	170 $\frac{1}{2}$ LBS. 171 LBS.	BODY PAINTED GREY, WITH 3 INCH RING AROUND NOSE. COLOURED YELLOW WHEN FILLED YELLOW N° 1, 3 OR 5. COLOURED BLACK WHEN FILLED BLACK N° 1 OR 2.	
			WITH EACH OF THE ABOVE BOMBS, THE DATE OF FILLING (MONTH AND YEAR) IS STENCILLED ON IN BLACK.	

AERIAL BOMBS.

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DESIGNATION	MAXIMUM LENGTH	MAXIMUM DIAMETER	HOW PACKED
BOMB, INCENDIARY, AIRCRAFT, 4 LB MK I	21.5"	1.67" ACROSS FLATS.	WOOD BOX METAL LINED TO HOLD 20. B 268 MK I.
BOMB, INCENDIARY, AIRCRAFT, 25 LB MK I	32.6"	5.03"	WOOD BOX TO HOLD 4. B.258 MK I.

(INCENDIARY.)

STOWAGE DIMENSIONS			WEIGHT OF BOX.		MARKING ON	
LENGTH	BREADTH	DEPTH	EMPTY	FILLED	BOX	BOMB
25·0"	11·7"	13·0"	25½ LBS.	105 ½ LBS.	PAINTED RED ALL OVER	NOSE PAINTED DULL RED WITH A BLACK BAND CENTRALLY OVER THE RED, AND A BRIGHT RED BAND CENTRALLY OVER THE BLACK.
36·75"	14·0"	16·375"	30 LBS. ESTIMATED	130 LBS.	PAINTED RED ALL OVER	WHOLE EXTERIOR OF BOMB PAINTED DULL RED WITH A BLACK BAND AROUND NOSE, AND A BRIGHT RED BAND ON THE BLACK

(52) SHELL MARKINGS

The following are the up-to-date markings to be found on shell.

- (a) H.E. shell are painted yellow with a light green band around the body or head when filled Amatol. A fraction (as applicable) is stencilled below the green band for Amatol other than 80/20. The letters T.N.T. are stencilled on the green band when shell are so filled.
- (b) The word "PURE" after the fraction denotes the use of T.N.T. not below Grade II in the composition of the Amatol. This will only be found with old stocks of shell.
- (c) A black band around the body, 2 inches wide, on shell painted yellow indicates empty H.E. sentenced for drill purposes.
- (d) H.E. filled shell sentenced "for practice only" will have two black bands 1 inch wide and 1 inch apart.
- (e) Red tip denotes shrapnel shell.
- (f) Red tip and yellow band around the body indicates shrapnel projectile for use at practice.
- (g) Yellow band around the body indicates practice or target projectile.
- (h) Two yellow bands around the body indicates special practice projectile.

NOTE. For future issue of practice projectiles this marking will be discontinued.

- (i) A red ring around the head indicates that the shell contains explosives.
- (j) A ring of red crosses around the head in lieu of red ring indicates that the shell filled Amatol or T.N.T. is suitable for use in hot climates.
- (k) Design number of method of filling (except Shrapnel) e.g. 23929.
- (l) Smoke shell filled phosphorus are painted green with the letters PHOS in black
- (m) Projectiles prepared for or fitted with tracer :-

when prepared for a tracer

" fitted with a tracer

" " " " fuze

These symbols will be stencilled in red on black projectiles and in black on other coloured projectiles.

- (n) A series number in a ring to denote the filled Lot.
- (o) The monogram of the filling station or Firm and the date of filling (month and year)
- (p) On H.E. shell, the particulars of the gaine, i.e. the No. Mark and Lot number.
- (q) Expldr C.E. when C.E. exploder is in use.
- (r) If the exploder is not shown on H.E. shell a T.N.T. exploder is indicated.
- (s) Two aluminium discs, diametrically opposite each other, denotes the presence of a flash producer.
- (t) Two green discs, opposite each other, denotes the use of a smoke box.

- (u) A white tip and a white ring denotes A.P. shot.
- (v) Shell painted green with two white rectangular patches superimposed with a number indicates base emission or base ejection type of shell filled smoke mixture.
- (w) Uncapped shell filled Shellite are painted green from shoulder to tip. Capped shell with this filling have a green cap only. For each nature of shell a fraction e.g. 70/30 denotes the nature of filling.

(53) LUTING

The Luting used in the Service is Luting, (Thick) Mk. IV, Lead Free and Luting (Thin) Mk. V Lead Free.

It consists of Kaolin, Mineral Jelly and Castor Oil thoroughly incorporated in the following proportions by weight:-

Ingredient	Luting (Thick) Mk. IV Lead Free	Luting (Thin) Mk. V. Lead Free
Kaolin, Lead Free	80	80
Mineral Jelly, Lead Free	35	150
Oil, Castor, "	1	1

Thick luting may be used for waterproofing the rings of time fuzes when composition R.D. 1154 is not available. It should, however, only be used as a last resort on account of its tendency to harden and so jam the time ring.

Thin luting, on account of its high percentage of Mineral Jelly, is more fluid, and if used for the above purpose would affect the powder in the time rings. Its use for this purpose is, therefore, forbidden.

Before insertion in the shell the threads of fuzes, except the bottom three, should be well coated with thin luting and the top three threads with a thick coat of thick luting, a thick fillet of the latter being placed around the underside of the flange. In the case of fuzes with short threaded portion (e.g. No. 80 type) all the threads will be covered with thick luting. Mk. IV luting is issued in 100 lb. kegs, 14 lb. paper bags, and 1 lb. tins.

Mk. V luting is issued in 1 lb. tins only.

All packages used for containing luting are unpainted and marked in white or black 1-inch letters, "Lead Free", together with a description of the contents, the contract number, distinctive lot and package number, date of supply and the Contractor's initials or trade mark.

(54) T.N.T. SLABS

The T.N.T. slab, $1\frac{1}{3}$ lb. Mk. I, has been approved. These are rectangular slabs, 6" x 3" x 1.45" maximum dipped in paraffin wax and perforated in the form of a truncated cone to take a dry guncotton or C.E. primer. Packed in Box, I.C.I. D.3, wood, to hold 15 slabs in 5 packages of 3. Dimensions of box $14\frac{1}{2}$, breadth $9\frac{1}{2}$ ", depth $7\frac{3}{4}$ ". Weight empty 6 lbs. filled 26 lbs. Boxes containing T.N.T. slabs are painted service colour with the letters T.N.T. in yellow in a rectangle on sides and ends. The number of slabs contained in the box is stencilled above the rectangle and the box is marked with the manufacturers initials and date of filling.

(55) PICRITE It a white microcrystalline powder. It is not issued to the Service in bulk but only as a constituent of the flashless cordite R.D.N./A. in which it is incorporated.

(56) NEONITE An N/C propellant used for certain small arms. Is essentially N/C coated with methyl centrolite as a moderator.

(57) R.D.X. A new High Explosive. Used at present in certain aerial bombs.

(58) Oiling shell

Attention has been drawn to the fact that the use of boiled linseed oil, lead free, for coating shell exposed for ready use at gun sites is not entirely satisfactory with the smaller calibres.

Owing to the reduced clearances in the smaller calibres there is a danger that shell treated in this way may cause difficulty in loading, consequently the use of boiled linseed oil for this purpose should be discontinued and one of the lighter oils issued to the equipment used for keeping the shell clean.

It is emphasised that the amount of oil of any kind to be used on the shell should be kept to the minimum required to prevent rust and care should be taken that the oil does not leak into the cartridge case.

(59) CARTRIDGE ADJUSTED CHARGES. In future the marking "AC" on cartridges and packages to denote that they contain adjusted charges will be discontinued.

(60) GERMAN AIRCRAFT BOMBS

With reference to No.5 Bulletin, page 10, Fig. 6 shows the connections of the charging plug and the fuze fitting for the Rheinmetall typical German fuze. The charging plug is fixed to the aircraft and is simply a means of applying a 120-volt charge to condensers situated in the fuze. This is done through the two plungers marked A and B on the drawing. When the bomb is in position in the aircraft and the charging gear coupled the two plungers A and B are depressed so that they touch the contacts connected to the condensers.

Apart from the earth connection at the bottom of plunger B, the two halves of the diagram are identical. One side operates the direct action circuit and the other the delay action circuit of the fuze. The circuit to be used is selected by means of one of the selector switches in the bomb carrier installation before the bomb is released.

Each ignition system comprises two condensers, C.1 and C.2 with a high resistance leak R connected to an impact switch and a fuze. As the bomb leaves the aeroplane a potential of 120 volts is applied for a very short time to plunger A or B. This charges condenser C.1 and the charge leaks through resistance R to condenser C.2, the time taken in the process depending on the value of R, reports suggest that the time taken is 7 seconds, which, of course, may be varied. The object of the delay is to ensure that the bomb does not explode until a safe distance separates it from the plane. When the condenser C.2 is charged (to approximately 50 volts) it can fire the fuze if the impact switch makes contact.

It will be noted that the fuze ignition circuit for either of the condensers C.2 is through an earth contact at the bottom of plunger B and if this plunger remains depressed no ignition of the fuze can take place until it rises, as this circuit is broken.

If a bomb fails to explode after reaching the ground, one of the obvious precautions to be taken before removing the fuze is to remove any electrical charge from the condensers.

An experimental design of discharging apparatus has been produced, the principle of which is first to "earth" both the plungers and then depress them, thus preventing the condensers on either side, i.e., direct or delay action circuits, from charging up the condenser on the side not previously charged at the time of leaving the aircraft.

The discharging apparatus should be kept in position for 10 minutes before removal.

It is possible that one or both plungers may be found depressed when an unexploded bomb is located; they should not, however, be interfered with and the procedure indicated above for discharging should be carried out.

(61) AMENDMENTS TO BULLETIN NO.4

Page 7. Section 2. Delete all reference to ammunition other than .303" (Ball) A.P. Tracer and Observing.

Section 6 Tracer G Mk.II. Stowage dimension should read 16.9" - 10.75" - 9.25"

Page 12 Section 3. .380 Ball Revolver. In contents column insert 348 rounds (29 each holding 12 rounds).

AMENDMENTS TO BULLETIN NO.5

Page 6 "for weight of mine 5 lbs 10 ozs" read "8 lbs 9 ozs."
para.9 for weight of crate "filled 41 lbs" read "56 lbs."

Page 8 para. 4. Delete from "the most likely size" to end of paragraph and substitute "The maximum capacity of the Heinkel 111 is believed to be 8 - 250 K.G. bombs. It is unlikely that aircraft coming to England will carry more than 4. The maximum capacity of the Dornier 17 is believed to be 4 of these bombs but not more than 2 would be carried on aircraft coming to England".

Page 9. para 1. after "bombs per machine" insert "but not more than 2 canisters are likely to be carried on a voyage to England".

DIAGRAM SHOWING
CONNECTION OF CHARGING PLUG AND
THE FUZE FITTING FOR RHEINMETALL
TYPICAL GERMAN FUZE.



